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**State Water Resources Control Board
Bay Protection and Toxic Cleanup Program**

**A LEGISLATIVE REPORT
96-3WQ**

**Status of the
Bay Protection and
Toxic Cleanup Program**

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

REPORT TO THE LEGISLATURE

STATUS OF THE
BAY PROTECTION AND TOXIC CLEANUP PROGRAM

BPTCP

DECEMBER 1996

PREFACE

The State Water Resources Control Board (SWRCB) is required by the Water Code to report to the State Legislature on the progress of the Bay Protection and Toxic Cleanup Program (BPTCP) and on the adequacy of the annual fees established to fund the Program. This report describes the Program accomplishments and adequacy of the annual fees.

The BPTCP started the very difficult task of identifying toxic hot spots and planning for their cleanup in 1990. The Program has focussed resources on identifying problem areas using the best available scientific methods and approaches. Even though the annual fees collected to support the Program never reached the amount needed and have decreased over the past four years, the Program has made significant strides in meeting the mandates set down by the Legislature seven years ago.

The SWRCB has addressed the problems and limitations of resources to support the BPTCP. The Program has been reviewed by three standing committees (which included review of both the scientific and policy aspects of the Program), has undergone an internal review, and has been reviewed at a SWRCB workshop.

Despite the problems encountered along the way, the BPTCP has provided new insights into locating and assessing water and sediment quality problems in California's bays and estuaries.

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LIST OF ABBREVIATIONS

BMP	Best Management Practice
BPTCP	Bay Protection and Toxic Cleanup Program
DFG	Department of Fish and Game
DDT	1,1,1-trichloro-2,2-bis(p-chlorophenyl)-ethane
DOD	Department of Defense
DWQ	Division of Water Quality, State Water Resources Control Board
FED	Functional Equivalent Document
FY	Fiscal Year
MSTF	Monitoring and Surveillance Task Force
NOAA	National Oceanic and Atmospheric Administration
OEHHA	Office of Environmental Health Hazard Assessment
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
RWQCB	Regional Water Quality Control Board
SPARC	Scientific Planning and Review Committee
SWRCB	State Water Resources Control Board
TIE	Toxicity Identification Evaluation
U.S. EPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

This Report describes the current status of the Bay Protection and Toxic Cleanup Program (BPTCP), the adequacy of the fees, and makes several conclusions on the operation of the BPTCP.

The California Water Code established the BPTCP in 1989. The BPTCP is a comprehensive program developed within the State Water Resources Control Board (SWRCB) to protect the existing and future beneficial uses of California's enclosed bays and estuaries. The BPTCP has provided a new focus on the SWRCB and the Regional Water Quality Control Boards (RWQCBs) efforts to control pollution of the State's bays and estuaries by establishing a program to identify toxic hot spots and plan for their cleanup.

BPTCP Monitoring Accomplishments

First large-scale program to use effects-based monitoring

Over 900 sites sampled since 1992

Data are available and computer network in place

The BPTCP has four major goals: (1) protect existing and future beneficial uses of bay and estuarine waters; (2) identify and characterize toxic hot spots; (3) plan for the prevention and control of further pollution at toxic hot spots; and (4) develop plans for remedial actions at existing toxic hot spots and prevent the creation of new toxic hot spots.

As part of the legislative mandates of the Program, the BPTCP has implemented regional monitoring programs to identify toxic hot spots (Water Code Section 13392.5). Regional monitoring efforts are being implemented in all seven coastal regions. The BPTCP has completed a significant amount of monitoring (over 900 sites) since 1992. The BPTCP was one of the first programs in the State to use effects-based monitoring (i.e., monitoring impacts of sediment and water on organisms). The BPTCP consolidated database and network are operational, and they have been used by the SWRCB and RWQCB staff.

Three groups support or review the activities of the BPTCP: (1) the Monitoring and Surveillance Task Force [consisting of SWRCB, RWQCB, Office of Environmental Health Hazard Assessment (OEHHA), and the Department of Fish and Game (DFG) staff], (2) the Scientific Planning and Review Committee (consisting of scientists from universities, government and other organizations), and (3) the BPTCP Advisory Committee (with members representing fee paying dischargers, environmental and trade organizations).

In January 1995, a draft Functional Equivalent Document (FED) for the development of a water quality control policy to implement the BPTCP was issued. The water quality control policy that could result from the approval of the FED would serve as guidance for the RWQCBs on consistent program implementation. The specific definition of a toxic hot spot and the ranking criteria were redrafted several times in response to comments received from the BPTCP Advisory Committee and the Monitoring and Surveillance Task Force.

**BPTCP Planning
Accomplishments**

Draft Ranking Criteria

Draft guidance for Cleanup Plans

Sediment Quality Objectives
Workplan

There has been a significant amount of controversy over the definition of a toxic hot spot, ranking criteria, and the process for developing toxic hot spot cleanup plans. The Water Code-mandated Regional and Statewide Toxic Hot Spot Cleanup Plans have not been completed and the draft FED has not been approved. The deadlines for the Regional and Statewide Cleanup Plans are January 1, 1998 and January 1, 1999, respectively.

The annual fees created pursuant to Water Code Sections 13396.5(b) and (d) have been far less than originally projected and consequently have been inadequate to complete all the tasks contained in Chapter 5.6 of the Water Code (Bay Protection and Toxic Cleanup). Even though the BPTCP has received some additional funding to support some of the monitoring activities, funding is not adequate to complete the planning activities (e.g., Regional Cleanup Plans and the Statewide Cleanup Plan).

To begin addressing these problems, the SWRCB completed a review of the Program. The review concluded that the BPTCP, with declining resources, should be focussed on collecting scientifically defensible monitoring data to identify potential problem areas in the State's enclosed bays and estuaries.

In November 1995, a public workshop was held by the SWRCB on the future direction of the BPTCP. The SWRCB heard testimony on five options for the Program: (1) continue the BPTCP as described in the Water Code (status quo), (2) modify the BPTCP to focus on identification of toxic hot spots, (3) modify the BPTCP to require a sediment management framework supported by regional case studies, (4) refocus the BPTCP to help coordinate watershed management activities of the SWRCB and RWQCBs, and (5) terminate the Program at the end of the fiscal year.

After careful consideration of all the comments received, the SWRCB agreed that the BPTCP should continue with a focus on regional monitoring and watershed management.

How to Improve the BPTCP

- Focus on regional monitoring and watershed management
- Use a weight-of-evidence approach
- Rank sites regionally
- Continue monitoring efforts

The BPTCP Advisory Committee and others have examined the existing program extensively and have discussed the following concepts that could be incorporated into the Program:

1. The monitoring efforts to identify polluted areas in California's enclosed bays and estuaries should continue.
2. The Water Code should be modified to focus the Program on regional monitoring and watershed management.
3. The term "toxic hot spot" should be replaced.
4. The Program should use a weight-of-evidence approach to identify water quality problems.
5. The Program should emphasize regional ranking of polluted areas.

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6. The Water Code should be modified to encourage the RWQCBs to use watershed management principles to address identified problems.

This report to the Legislature concludes:

1. The BPTCP has completed a significant amount of monitoring to identify toxic hot spots. The BPTCP monitoring effort is the only State program to focus on bay and estuary sediments and has pioneered the use of effects-based monitoring of sediments. These studies will be very valuable in regional decision making.
2. Several reports on the monitoring results have been completed or are in preparation. These reports will be very useful in addressing polluted sites. A workplan for the development of sediment quality objectives was developed.
3. The BPTCP consolidated database has been developed.
4. The Enclosed Bays and Estuaries Plan was developed and amended. The Plan was rescinded by the SWRCB in 1994 in response to a California Superior Court judgement and is currently being redeveloped.
5. Toxic Hot Spot Ranking Criteria have been drafted.
6. Three review committees have been established: the MSTF, the SPARC and the BPTCP Advisory Committee.

Major Conclusions

BPTCP's pioneering use of effects-based monitoring has provided better information to make decisions

BPTCP reports provide valuable information

Extensive review by the public and scientists provides new focus for the BPTCP

Annual fees inadequate to complete mandates

Comprehensive watershed management framework will be more effective in addressing cleanup

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7. Guidance on the development of Toxic Hot Spot Cleanup Plans has been drafted.
 8. The annual fees collected to support the BPTCP have been far less than originally projected and consequently have been inadequate to fund the remaining tasks (e.g., Toxic Hot Spot Cleanup Plans) required by the Water Code. The funding is barely enough for continued monitoring to identify Toxic Hot Spots in enclosed bays and estuaries of California. During the final two years of the Program, the BPTCP will focus attention on completion and reporting of monitoring.
 9. The BPTCP has received considerable scrutiny by the BPTCP Advisory Committee, the independent program review, and SWRCB public workshop. Many of the Program tasks have been controversial. These activities provided new focus to the BPTCP.
 10. The use of a comprehensive watershed management framework for the prevention and cleanup of polluted sediments in the enclosed bays and estuaries of the State will be very effective in addressing site cleanup.

PROGRAM DESCRIPTION

Introduction

California Water Code, Division 7, Chapter 5.6 (Appendix A) established a comprehensive program within the SWRCB to protect the existing and future beneficial uses of California's enclosed bays and estuaries. SB 475 (1989), SB 1845 (1990), and AB 41 (1989) added Chapter 5.6 [Bay Protection and Toxic Cleanup (Water Code Sections 13390-13396.5)] to Division 7 of the Water Code.

The BPTCP has provided a new focus on the SWRCB and the Regional Water Quality Control Boards (RWQCBs) efforts to control pollution of the State's bays and estuaries by establishing a program to identify toxic hot spots and plan for their cleanup.

The California Water Code [Section 13396.5(f)] requires the State Water Resources Control Board (SWRCB) to report to the Legislature on the progress of Bay Protection and Toxic Cleanup Program (BPTCP) implementation, and the adequacy of the fee levels established in Sections 13396.5(b) and (d). This report describes the current status of the BPTCP, the adequacy of the fees, and makes several conclusions on the operation of the BPTCP.

Program Activities

The BPTCP has four major goals: (1) protect existing and future beneficial uses of bay and estuarine waters; (2) identify and characterize toxic hot spots; (3) plan for the prevention and control of further

BPTCP Goals
Protect existing and future beneficial uses of bay and estuarine waters
Identify and characterize toxic hot spots
Plan for the prevention and control of further pollution at toxic hot spots
Develop plans for remedial actions of existing toxic hot spots and prevent the creation of new toxic

pollution at toxic hot spots; and (4) develop plans for remedial actions of existing toxic hot spots and prevent the creation of new toxic hot spots.

The BPTCP is a comprehensive effort by the SWRCB and RWQCBs to programmatically link standards development, environmental monitoring, water quality control planning, and site cleanup planning. The Program includes seven primary activities:

1. Development and amendment of the California Enclosed Bays and Estuaries Plan. This plan should contain the State's water quality objectives for enclosed bays and estuaries, and implementation measures for these objectives.
2. Development and implementation of regional monitoring programs designed to identify toxic hot spots. These monitoring programs include analysis for a variety of chemicals, toxicity tests, measurements of biological communities, and various special studies to support the Program.
3. Development of a consolidated database that contains information pertinent to describing and managing toxic hot spots.
4. Development of narrative and numeric sediment quality objectives for the protection of California enclosed bays and estuaries.
5. Preparation of criteria to rank toxic hot spots that are based on the severity of water and sediment quality impacts.
6. Development of Regional and Statewide Toxic Hot Spot Cleanup Plans that include identification and priority ranking of toxic hot spots, identification of pollutant sources, identification of actions already initiated, strategies for preventing formation of new toxic hot spots, and cost estimates for recommended remedial actions.
7. Implementation of a fee system to support all BPTCP activities.

Toxic Hot Spot Identification

The Water Code defines toxic hot spots as locations in enclosed bays, estuaries, or the ocean where pollutants have accumulated in the water or sediment to levels which (1) may pose a hazard to aquatic life, wildlife, fisheries, or human health, or (2) may impact beneficial uses, or (3) exceed SWRCB or RWQCB-adopted water quality or sediment quality objectives.

To identify toxic hot spots, water bodies of interest have been assessed on both a regional and site-specific basis. Regional assessments require evaluating whether water quality objectives are attained and beneficial uses are supported throughout the water body. In the past, the State Mussel Watch program, independent RWQCB studies, and other studies were used extensively to evaluate beneficial use impacts in many California enclosed bays and estuaries. The BPTCP efforts continue this work by focussing on measures of effects (such as toxicity) with the associated pollutants.

Generally, where sites were not well characterized, regional monitoring programs have been implemented. This monitoring activity has been performed by the Department of Fish and Game (DFG) under contract with the SWRCB. The consolidated statewide database required by the Water Code was planned to eventually include all data generated by the regional monitoring programs.

Major Activities
Enclosed Bays and Estuaries Plan
Identifying toxic hot spots
Consolidated database
Sediment quality objectives
Ranking criteria
Cleanup plans
Annual fee system

Ranking Criteria

The Water Code (Section 13393.5) requires the SWRCB to develop criteria for ranking toxic hot spots. The ranking criteria must consider the pertinent factors relating to public health and environmental quality. The factors include three considerations: (1) potential hazards to public health, (2) toxic hazards to fish, shellfish, and wildlife, and (3) the extent to which the deferral of a remedial action will result, or is likely to result, in a significant increase in environmental damage, health risks, or cleanup costs.

Sediment Quality Objectives

State law defines sediment quality objectives as "that level of a constituent in sediment which is established with an adequate margin of safety, for the reasonable protection of beneficial uses of water or prevention of nuisances" (Water Code Section 13391.5). Water Code Section 13393 further defines sediment quality objectives as: "...objectives...based on scientific information, including but not limited to chemical monitoring, bioassays or established modeling procedures." The Water Code requires "adequate protection for the most sensitive aquatic organisms." Sediment quality objectives can be either numerical values based on scientifically defensible methods or narrative descriptions implemented through toxicity testing or other methods.

Toxic Hot Spot Cleanup Plans

The Water Code requires that each RWQCB must complete a toxic hot spot cleanup plan and the SWRCB must prepare a statewide consolidated toxic hot spot cleanup plan. To facilitate the development of these plans, the SWRCB began the development of a water quality control policy with guidance to the RWQCBs for consistent implementation of the BPTCP.

Each cleanup plan must include: (1) a priority listing of all known toxic hot spots covered by the plan; (2) a description of each toxic hot spot including a characterization of the pollutants present at the site; (3) an assessment of the most likely source or sources of pollutants; (4) an estimate of the total costs to implement the cleanup plan; (5) an estimate of the costs that can be recovered from parties responsible for the discharge of pollutants that have accumulated in sediments; (6) a preliminary

assessment of the actions required to remedy or restore a toxic hot spot; and (7) a two-year expenditure schedule identifying State funds needed to implement the plan.

Within 120 days from the ranking of a toxic hot spot in a regional cleanup plan, each RWQCB is required to begin reevaluating waste discharge requirements for dischargers who have contributed any or all of the pollutants which have caused the toxic hot spot. These reevaluations shall be used to revise water quality control plans wherever necessary. Reevaluations shall be initiated according to the priority ranking established in cleanup plans.

Program Organization

Three groups support or review the activities of the BPTCP: (1) the Monitoring and Surveillance Task Force, (2) the Scientific Planning and Review Committee, and (3) the BPTCP Advisory Committee. The functions of each of these groups follow:

1. *Monitoring and Surveillance Task Force (MSTF)*. This committee was established to promote standard approaches for monitoring and assessing the quality of California’s enclosed bays and estuaries [Section 13392.5(a)(1) of the Water Code]. While the primary focus of this committee has been on monitoring implementation, the committee has also developed and contributed to all other aspects of the Program including cleanup planning, ranking criteria and implementation of the annual fee program. The members of the task force are SWRCB, RWQCB, DFG and the Office of Environmental Health Hazard Assessment (OEHHA) staff.
2. *Scientific Planning and Review Committee (SPARC)*. Although not legislatively mandated, SPARC brings together independent experts in the fields of toxicology, benthic ecology, organic and inorganic chemistry, program implementation and direction,

BPTCP Organization

Monitoring and Surveillance Task Force

Scientific Planning and Review Committee

BPTCP Advisory Committee

experimental design, and statistics to review the approaches taken by the BPTCP. The committee has provided comments on the Program's monitoring approach(es), given input on the scientific merit of the approach(es) taken, and provided suggestions for monitoring improvement.

3. *BPTCP Advisory Committee.* This committee was established to assist the SWRCB in the implementation of the BPTCP (Section 13394.6(a) of the Water Code). The major purpose of the committee is to review the Program activities and provide its views on how the products of the BPTCP should be interpreted and used. The committee has members from (a) trade associations; (b) fee-paying dischargers; and (c) environmental, public interest, public health and wildlife conservation organizations.

BPTCP Annual Fees

The activities of the BPTCP are supported primarily through the assessment of annual fees on point and nonpoint source dischargers who directly discharge into enclosed bays, estuaries or the ocean. The Water Code (Section 13396.5) requires that the fees create incentives to reduce discharges. The SWRCB is limited by law from collecting more than \$4 million per year and assessing any fee higher than \$30,000 per discharge.

Legislative Deadlines

Recent legislation [SB 1084 (1993)] extended Program funding through 1998, the deadline for the Regional Toxic Hot Spot Cleanup Plans to 1998 and the Statewide Cleanup Plan until 1999 (Table 1); excluded agricultural dischargers from paying fees; created the BPTCP Advisory Committee; and mandated completion of an epidemiology study (a health effects study of swimming near storm drains at southern California beaches). AB 385 (1993) allowed an exemption for certain types of dischargers that create habitat for wildlife.

Table 1: Water Code-mandated deadlines for the BPTCP

<u>Activities</u>	<u>Deadline</u>
Sediment Quality Objectives Workplan	7-1-91
Consolidated Database	1-30-94
Ranking Criteria	1-30-94 ¹
Progress Report	1-1-96
Regional Cleanup Plans	1-1-98
Statewide Cleanup Plan	1-1-99

¹This deadline was not met. The SWRCB requested an extension until February 28, 1995. The BPTCP completed a draft ranking criteria by the February deadline; however, the BPTCP Advisory Committee requested that the deadline be further extended so discussions on very controversial topics could be concluded.

PROGRAM STATUS

The BPTCP has been implemented by the SWRCB and RWQCBs since 1990. Progress has been made in a number of Program activities. This section lists the accomplishments of the Program and describes activities in the BPTCP's monitoring, cleanup planning, database and annual fee efforts.

Program Accomplishments

1. The MSTF was established in 1990.
2. Adoption and amendment of the California Enclosed Bays and Estuaries Plan in compliance with Water Code Section 13391 (SWRCB, 1991b; 1992a; 1992b). This Plan was rescinded by the SWRCB in September 1994 in response to a California Superior Court judgement.
3. Adoption of the Sediment Quality Objectives Workplan as required by Section 13392.6 of the Water Code (Lorenzato and Wilson, 1991; Lorenzato et al., 1991). Completion of a preliminary study on the development of a biomarker (Anderson et al., 1995).
4. SWRCB implemented an interagency agreement with DFG to identify toxic hot spots in all coastal regions of California. DFG used standard approaches for these monitoring efforts (DWQ/SWRCB, 1991b).
5. Regulations to implement the BPTCP annual fees were adopted by the SWRCB (DWQ/SWRCB, 1991a; SWRCB, 1991a; 1992c).

BPTCP Accomplishments
Program review by three committees
Monitoring throughout the State
Ranking criteria drafted
Guidance on cleanup planning drafted
Over 20 major reports developed

6. The BPTCP annual fee system was implemented and four billing cycles were completed.
7. San Francisco Bay RWQCB completed the pilot regional monitoring program related studies (Taberski et al., 1992; Stephenson, 1994; Flegal et al., 1994; Smith and Cheng, 1994).
8. Completion of planning, purchase and installation of the BPTCP data system and network (DWQ/SWRCB, 1992; DWQ/SWRCB and the Teale Data Center, 1992).
9. Draft Ranking Criteria for the priority ranking of toxic hot spots (DWQ/SWRCB, 1993).
10. OEHHA developed a strategy for developing sediment quality objectives based on human health risk assessment (Brodberg et al., 1993).
11. The RWQCBs compiled available information that can be used to identify toxic hot spots (SWRCB, 1993).
12. The RWQCBs initiated regional monitoring to identify toxic hot spots by the end of FY 1992-93.
13. Regional monitoring and planning activities were augmented with four Federal grants (one from the U.S. Environmental Protection Agency (\$150,000), and three from the National Oceanic and Atmospheric Administration (a total of \$625,000) (SWRCB and NOAA, 1991; 1992; 1993; SWRCB and EPA, 1994).
14. The BPTCP Advisory Committee was formed in 1994 and several meetings were held.
15. Beginning in FY 1994-95, monthly meetings of the MSTF and the BPTCP Advisory Committee were held.
16. The SPARC held a very successful technical workshop in April 1995 (SWRCB et al., 1995).

17. A second SPARC workshop was held in May 1996 (SWRCB et al., 1996).
18. Implementation of the DFG interagency agreement (DWQ/SWRCB, 1994). Work was initiated in the North Coast Region, the San Francisco Bay Region, the Central Coast Region, the Los Angeles Region, the Central Valley Region, the Santa Ana Region and the San Diego Region.
19. Reports completed in FY 1994-95 include:
 - A. Bay Protection and Toxic Cleanup Program Quality Assurance Project Plan (Stephenson et al., 1994).
 - B. San Francisco Estuary Pilot Regional Monitoring Program: Sediment Studies (Flegal et al., 1994).
 - C. Draft Final Report on the Sediment Chemistry and Toxicity in the Vicinity of the Los Angeles-Long Beach Harbors (Sapudar et al., 1994).
 - D. Draft Functional Equivalent Document for the Implementation of the BPTCP (SWRCB, 1995a).
 - E. Briefing Document for the Scientific Planning and Review Committee (SWRCB et al., 1995).
 - F. Contaminant Levels in Fish Tissue from San Francisco Bay (RWQCB et al., 1995).
20. The draft ranking criteria were in review by the BPTCP Advisory Committee (DWQ/SWRCB, 1995).
21. Dischargers were invoiced for BPTCP annual fees in January 1995. RWQCB staff made a strong effort to collect past due fees (i.e., fees unpaid in prior years).
22. The epidemiology study for Santa Monica Bay was initiated.

23. The SWRCB took an action formally appointing the BPTCP Advisory Committee Members (SWRCB, 1995a). Operating Procedures for the BPTCP Advisory Committee were approved (SWRCB, 1995b).
24. Geographical Information System data layers for all coastal and San Francisco Bay-Delta area counties were provided to RWQCB staff.
25. Completion of RWQCB and SWRCB training for FY 1995-96 fee collections.
26. Reports initiated or completed in FY 1995-96 include:
 - A. Chemistry, Toxicity and Benthic Community Conditions in Sediments of the San Diego Bay Region (Fairey et al., in review).
 - B. Chemistry, toxicity, and benthic community conditions in sediments of the southern California bays and estuaries. (Anderson et al., in review).
 - C. A comparative evaluation of biomarker methods using fish captured from the Los Angeles Harbor area (Okihiro and Hinton, in review).
 - D. Revised BPTCP Quality Assurance Project Plan (Stephenson et al., in preparation).
 - E. Scientific Planning and Review Committee Briefing Document for Recommendations on the BPTCP Monitoring Activities (SWRCB et al., 1996).
 - F. Evaluation of sediment toxicity tests and reference sites in San Francisco Bay (Hunt et al., in review).
 - G. Development of toxicity identification evaluation guidelines for estuarine sediment (Hansen and Associates, 1996).

- H. Transport of suspended sediment and metals into the Sacramento-San Joaquin Delta Estuary during 1995 (Foe, in preparation).
- I. Greens Landing metal sampling (Foe, 1995).
- J. Sacramento-San Joaquin Delta Estuary Bioassay Monitoring Study, 1993-94 (Deanovic et al., in review).
- K. 1994-95 Sacramento-San Joaquin Delta Estuary Bioassay Monitoring Study, Annual Report (Deanovic et al., in preparation).
- L. Draft Staff Report: Status of the BPTCP (DWQ/SWRCB et al., 1995).

Monitoring

As part of the legislative mandates of the Program, the BPTCP has implemented regional monitoring programs to identify toxic hot spots (Water Code Section 13392.5). All BPTCP monitoring activities are being completed under a contract with DFG (DWQ/SWRCB, 1991b; 1994; SWRCB, 1993; and numerous cruise reports, data reports, and quality assurance reports from DFG). Regional monitoring efforts are being implemented in all seven coastal regions (SWRCB, 1993; SWRCB et al., 1995). The BPTCP has completed a significant amount of monitoring since 1992 (Table 2).

The BPTCP has pioneered the use of effects-based measurements of impacts in California's enclosed bays and estuaries. The Program has used a two-step process to identify toxic hot spots. The first step is to screen sites using toxicity tests. In the second step, the highest priority sites with observed toxicity are retested to confirm the effects (SWRCB et al., 1995; 1996). Additional studies were performed to address several important questions related to the evaluation of the toxicity testing data (e.g., the San Francisco Bay reference site study) or to evaluate bioaccumulation of contaminants (e.g., the San Francisco Bay fish study).

Table 2: Summary of analyses completed between 1992 and 1995
by the BPTCP.

Type of Analysis	Number Completed
Sediment samples collected	914
Pore water extractions	598
Toxicity tests	3,598
Benthic community analyses	233
Organic chemistry analyses	481
Metals analyses	5,559
Total organic carbon analyses	865
Grain size analyses	865
Fish tissue analyses	72
Toxicity identification evaluations	59

Summaries of the monitoring work completed to date and needed studies are presented below:

San Diego Bay Report: A substantial amount of monitoring has been completed in San Diego Bay, Mission Bay and the Tijuana River Estuary. Three-hundred and fifty stations have been sampled and data analyzed. The first internal draft of the report was completed by DFG on September 1, 1995 (DFG et al., in review).

Major BPTCP Monitoring Studies
San Diego Bay
Southern California coastal lagoons
Los Angeles-Long Beach Harbor

Measurements of sediment toxicity, benthic community structure, and chemicals present in the sediments were made. Three stations were found to satisfy the conditions listed in the definition of a toxic hot spot (DWQ/SWRCB, 1995). Eighty-four other stations were identified to be of moderate and low concern.

Small Bays and Estuaries Pilot Study: The Small Bays and Estuaries pilot study was initiated in March 1995 (SWRCB et al., 1994) as a cooperative effort among the SWRCB, NOAA and the U.S. EPA Environmental Monitoring and Assessment Program. The draft report on this study is being reviewed (Anderson et al., in review). Among other things, this study will continue development of a benthic index for interpretation of benthic data, and identify the measured toxicants which are most associated with toxic response.

Additional Monitoring Planned in the San Diego Region: Based on review of BPTCP data and other data, it appears there are four main issues to be resolved: (1) Unexplained toxicity in Los Penasquitos Lagoon, (2) Unexplained toxicity and benthic community degradation along the three-mile coastline of San Diego Bay in the vicinity of the shipyards, (3) High levels of chlordane identified in sediments in San Diego Bay and at the mouths of several tributaries to bays and estuaries, and (4) Elevated levels of mercury, PCBs, and pesticides in fish tissues identified in a previous San Diego Bay health risk assessment. To resolve

these issues, the RWQCB proposed the following efforts: (1) Amphipod survival, sediment chemistry, and benthic community analysis sampling in coastal lagoons, (2) Concurrent sediment chemistry, amphipod toxicity, and benthic community analysis in San Diego Bay, and (3) Fish tissue analysis for mercury, PCBs, dioxin, chlordane, and other pesticides in San Diego Bay.

Los Angeles and Long Beach Harbors Draft Report: This study characterized the magnitude and relative spatial extent of toxicant-associated bioeffects in Los Angeles and Long Beach Harbors, Anaheim Bay, and Huntington Harbour (Sapudar et al., 1994). Thirty-five sites were sampled (with three field-replicated stations per site) in the study area. Amphipod survival and abalone larval development toxicity tests were performed on the sediment samples and pore water. Significant amphipod mortality compared to laboratory controls was observed at the majority of sites in the Los Angeles and Long Beach inner harbors. Most of the outer harbor site sediments were not toxic to amphipods. Many of the sediments from sites in Huntington Harbour, Anaheim Bay and Alamitos Bay were toxic to amphipods. Several chemicals (e.g., acenaphthene, phenanthrene, fluoranthene, copper, lead, zinc) or chemical groups (e.g., total PAHs) were significantly correlated with amphipod survival.

Cabrillo Pier (Los Angeles Region): One major candidate toxic hot spot, the Cabrillo Pier area in Los Angeles Outer Harbor, is largely uncharacterized. The site's candidate toxic hot spot status is based on a fish advisory which resulted from an OEHHA study released in 1991 which cited elevated DDT and PCB levels in a number of fish species caught in the area. Sediment DDT levels in some BPTCP samples collected from the site were elevated above that found elsewhere in the harbor while sediment PCB levels were comparable to other sites. Sediment toxicity fluctuated widely. This is a heavily used sustenance and sportfishing pier. It is unclear whether fish caught there are contaminated from DDT found locally or from sources outside of but close to the harbor. It is also unknown whether fish are still contaminated five years after the release of the OEHHA report. Fish bioaccumulation and sediment

chemistry data as well as a way to track and analyze the food source of these fish are necessary components of additional work.

Mugu Lagoon (Los Angeles Region): Pesticides are of concern in Mugu Lagoon at the mouth of the Calleguas Creek

Watershed. Water-soluble pesticides currently in use, such as diazinon and chlorpyrifos, may be occurring in sediment porewater at high enough concentrations to be causing observed porewater toxicity. These pesticides are likely involved with observed upstream ambient toxicity. Focussed toxicity identification evaluations could effectively confirm or eliminate these constituents as a toxicity source in lagoon sediment porewater.

**Major BPTCP
Monitoring Studies**

Cabrillo Pier

Mugu Lagoon

Central Coast Harbors

San Francisco Bay
Regional Monitoring
Reference Sites
Fish Contamination
Screening

Central Coast Harbors:

Samples have been collected at 35 stations during late 1992 and early 1993, within the main harbors and estuaries in the Central Coast Region. The areas sampled included Santa Cruz Harbor, Moss Landing area, Monterey Bay off Fort Ord, Monterey Harbor, Morro Bay Harbor and estuary, Santa Barbara Harbor, and Carpinteria Marsh. Sediment samples were measured for physical parameters, and analyzed for sediment toxicity, organics, and trace elements. The data from this sampling event revealed, not surprisingly, that sediments in bays and estuaries act as a sink for contaminants from throughout a given watershed. The Central Coast RWQCB identified potential problem areas, including

Santa Cruz Harbor, Moss Landing Harbor, and Monterey Harbor, where follow-up sampling was done this year.

San Francisco Bay Fish Contaminant Study: This study (RWQCB et al., 1995) was conducted to measure contaminant levels in fish caught and consumed by anglers in San Francisco Bay. The main objectives of the study were to identify, to the maximum extent possible, the chemicals, species and geographical areas of concern in San Francisco Bay. As a result of the data, OEHHA issued an interim health advisory for fish consumption in San Francisco Bay in December 1994. In part, the results of the study showed that:

Six chemicals or chemical groups (PCBs, mercury, dieldrin, total DDT, total chlordane and the dioxin/furans) were identified as potential chemicals of concern in San Francisco Bay. Elevated levels of the pesticides dieldrin, total DDT, and total chlordane were most often found in fish from the North Bay. Levels of PCBs, mercury, and the dioxin/furans were found at concentrations exceeding pilot study screening values at many sampling locations in the Bay.

San Francisco Estuary Pilot Regional Monitoring Program:
Sediment Studies: The main objectives of this study (Taberski et al., 1992; Stephenson, 1992; Flegal et al., 1994) were to: (1) screen critical habitats (marshes and mudflats) near potential sources of contamination to identify potential toxic hot spots, (2) develop a baywide sediment monitoring program that would act as a pilot program to define ambient conditions, and (3) evaluate the use of various sampling and testing methods for future monitoring programs. This study also provided the groundwork for a data management system currently being used by the BPTCP and the San Francisco Estuary Regional Monitoring Program.

San Francisco Bay Reference Site Study: The main purposes of the study are to: (1) identify sediment reference sites in San Francisco Bay for toxicity tests, (2) recommend sediment toxicity test protocols for monitoring in San Francisco Bay, (3) develop a statistical method to differentiate between ambient conditions and toxic sites, and (4) develop sediment Toxicity Identification Evaluation protocols that can be used in San Francisco Bay. A draft report on this study is currently available (Hunt et al., in review).

San Francisco Bay Screening: The BPTCP has also been conducting monitoring to screen and confirm toxic hot spots in the San Francisco Bay. In total, 102 sites have been screened for toxicity. Full chemical analysis has been conducted on all sites that exhibited toxicity. Chemical analysis for compounds that bioaccumulate is also being conducted on the other sites. Confirmation of potential toxic hot spots is planned for FY 1996-97. In addition, the BPTCP is coordinated with the investigation and cleanup activities at ten Department of Defense sites in San Francisco Bay that are slated for closure.

Stockton Urban Stormwater Runoff (Central Valley Region): The primary objective of the work is to identify pollutants present in Stockton wet weather urban runoff which cause toxicity in water samples collected from waterways located in the Southern Delta. This study has two objectives: (1) to identify the specific pollutants present in Stockton urban runoff causing toxicity in bioassays, and (2) to identify the spatial and temporal extent of the oxygen sag. A secondary objective will be to identify whether the oxygen suppression is the result of elevated biological or chemical oxygen demand.

**Major BPTCP
Monitoring Studies**

Stockton Urban Stormwater

Cache Creek Mercury Mass
Loading

North Coast Harbors and Estuaries

Cache Creek mercury mass loading study (Central Valley Region): The Central Valley trace metal monitoring program has three objectives: (1) to define the extent of metal criteria exceedances throughout the Delta, (2) to determine the extent of metal associated toxicity throughout the Delta; and (3) to determine the metal (mostly mercury) loading patterns to the Delta.

North Coast Harbors and Estuaries: Confirmation sampling is needed to followup on screening hits previously detected at three sites in Bodega Harbor and Humboldt Bay. Screening and confirmation (if warranted) of sites in Crescent City Harbor and the Russian River Estuary is also needed. Screening and benthic assessment is required at some cleaner sites such as the Smith,

Mad, Eel, Noyo, and Klamath River Estuaries to develop data set of baseline conditions.

Toxic Hot Spot Cleanup Plans

The development of toxic hot spot cleanup plans has been very controversial. In order to develop consistent regional plans, the SWRCB, with the assistance of the RWQCBs, DFG, and OEHHA developed draft guidance in January 1995 for the development of the plans (Appendix B). After several months of review by the BPTCP Advisory Committee, many issues presented in the FED intended to comply with Water Code Section 13390 et seq. were still unresolved. The most recent draft of the ranking criteria is incorporated into the January 1995 version of the draft FED.

Followup on the Problems Identified Using BPTCP Monitoring Data

North Coast RWQCB: Data collected in Humboldt Bay is providing valuable input for several mitigation efforts. The data are confirming multiple effects from a site involving recalcitrant land owners. The data also show the absence of measurable effects in the marine environment from a nearby site undergoing soil excavation and cleanup. The data are being used in ongoing waterfront redevelopment activities being pursued by the City of Eureka. Regulatory staff from the RWQCB are closely involved in these efforts by the City.

Bodega Harbor has been monitored. The chemical and bioassay data collected in the harbor near two marina facilities is of concern, but inconclusive. Confirmation samples are needed prior to proceeding with a course of action such as curtailment of activities releasing toxicants (if current), cleanup of identified deposition (if definable), or simply public notice of the issue and concern.

San Francisco Bay RWQCB: The RWQCB has formed a sediment

management committee to coordinate sediment investigations and cleanups, to develop a regional database that can relate data from a particular site to other sites around the Bay, and to develop the technical basis to assist in developing sediment guidelines for screening and cleanup.

Regional Board Actions

Humboldt Bay Waterfront
Redevelopment

Shearwater site in South
San Francisco Bay

Alameda Naval Air Station

Concord Naval Weapons Station

Projects that have been part of this process include Department of Defense sites slated for closure such as the Alameda Naval Air Station and the Concord Naval Weapons Station and private sites involving land transfer or development. In July 1996, the RWQCB adopted Site Cleanup Requirements for the Shearwater site in south San Francisco Bay. This site was polluted by lead, PAHs and PCBs from an historic U.S. Steel plant and from ship building activities in the 1930s and 1940s. The RWQCB Order requires cleanup of contaminated sediment by dredging and capping and the creation of wetlands.

The BPTCP was instrumental in the investigation and development of cleanup guidelines for this site.

The BPTCP monitoring data has been used to assist the Base Closure and Toxics programs at the RWQCB to evaluate sediment pollution at specific sites. The RWQCB is using the BPTCP database (data collected as part of the BPTCP and other data) to guide site evaluations and remediation. This allows the RWQCB to place a particular site in context with other potential toxic hot spots and ambient conditions. The database has been particularly effective in conveying to permit applicants and dischargers the sense of how a particular site compares with the entire Bay.

Dredging in San Francisco Bay will also benefit from the data and methodologies developed by the BPTCP. Dredging and disposal of sediment from shipping channels has been the focus of considerable public attention and controversy over appropriate disposal locations and conditions. The interagency Long Term Management Strategy (LTMS) for dredged material in San Francisco Bay was set up to determine how to manage dredge material. The Regional Board, in cooperation with the

State Board and other LTMS agencies, has been working to resolve this controversy by developing scientifically based definitions of contaminated sediments. Methods of defining ambient or reference conditions and chemistry and toxicity data developed through the BPTCP to describe those conditions have provided key information in developing a framework that would allow dredged material that is comparable to ambient sediment quality to be disposed of at any designated in-Bay site, thereby meeting antidegradation requirements.

In 1994 the BPTCP funded a study to measure contaminant levels in fish in San Francisco Bay. Data from this study was used by the Office of Environmental Health Hazard Assessment to issue a health advisory for consumption of bay caught fish. The bases for the health advisory was elevated concentrations of mercury and PCBs in fish tissue. However, the BPTCP has shown that mercury and PCB levels are relatively consistent throughout the entire Bay. This suggests that the sources are both historic and diffuse and that the risks associated with bioaccumulation need to be better defined. To address this problem, the RWQCB has established two committees. The first is to incorporate ongoing monitoring of contaminants in fish and data needed for health advisories and risk assessments into the San Francisco Estuary Regional Monitoring Program. The second is to inform the public on the results of the studies, the health advisory and how to reduce their health risk.

Identification of pollutants of concern in the fish and other BPTCP studies has also played a large role in the early phases of development of appropriate watershed management plans. Another example, besides the identification of PCBs and mercury as watershed problems, is the finding of relatively high concentrations of heavy polyaromatic hydrocarbons in the South Bay in comparison to other locations, suggesting a local source. The RWQCB will convene task forces to address these and other

Regional Board Actions

Long Term Management Strategy

San Francisco Bay Watershed Management

Regional Monitoring Program data used in decision making

Central Coast Watershed Management

pollutants of concern as part of the watershed initiative. The goal of these task forces is to develop an appropriate plan of action for addressing and/or continuing to monitor these pollutants of concern. Participants in these groups will be relying heavily on BPTCP and other monitoring data to accomplish this task.

The BPTCP funded the design and data collection for the San Francisco Estuary Pilot Regional Monitoring Program (RMP). The RMP is an ongoing monitoring program that monitors water column chemistry and toxicity, sediment chemistry and toxicity and bioaccumulation in bivalves throughout the Estuary several times a year. Special studies are also conducted under this program to help the RWQCB to better understand the connections between pollutant concentrations and the health of the Estuary. This program was specifically designed to develop information for RWQCB management decisions and has been extremely valuable for this purpose.

Central Coast RWQCB: The BPTCP results will be used to help determine appropriate dredge disposal options, focus upstream watershed protection efforts, and help develop harbor management practices. In some cases, the RWQCB may direct Harbor Districts to develop management plans to reduce local impacts on sediment and water quality, in coordination with the RWQCB stormwater permitting program.

Since potential toxic hot spots are the downstream terminus of watersheds, sediment cleanup would be difficult in many cases, as pollutants would continue to migrate downstream, polluting the remediated areas again. Accordingly, the RWQCB is directing the majority of their efforts toward upstream land use practices that cause the problem. In some cases, such as the Santa Cruz Harbor Yacht Basin, a local cleanup effort may be warranted to address high copper levels, but only after the cause of the problem is addressed.

Los Angeles RWQCB: A preliminary report on the Calleguas Creek Watershed has been prepared and work in that watershed is ongoing. As part of that report, BPTCP effects-based data were presented which established that Mugu Lagoon sediment is more toxic than sediment from other lagoons in the Region. It also demonstrated that current agricultural and erosion control practices are likely moving soils heavily

polluted with residuals of banned pesticides to drainages and subsequently into Mugu Lagoon. These data help to prioritize this watershed for funding to implement projects that control sediment movement and also pinpoint many of the pollutants of concern.

The Santa Monica Bay Watershed is currently being targeted in the watershed management process. BPTCP data will help to establish where sediments are impacted both in the nearshore and enclosed waters and by which pollutants. These data will aid setting priorities on pollutants of concern and identifying the primary contributing sources of pollutants.

Characterization of sediment pollution in Consolidated Slip of Los Angeles Inner Harbor is also currently underway. A reservoir of polluted sediment in the Slip is likely continuing to contaminate a large part of Los Angeles Inner Harbor. Sediment core samples have been collected in order to establish a three-dimensional view of pollutants and toxicity which will be necessary to plan out remedial actions.

Regional Board Actions

Calleguas Creek Watershed

Santa Monica Bay Watershed

Consolidated Slip in Los Angeles Harbor

Coordination of BPTCP with DOD and permitting activities in Los Angeles area

The data collected by the BPTCP will be useful in the Department of Defense (DOD) activities and permitting activities of the RWQCB. BPTCP methods have been used by DOD contractors for the Long Beach Naval Station in their installation remediation work. Results have thus been directly comparable to BPTCP data gathered elsewhere in the Los Angeles/Long Beach Harbor area and made more amenable to review. Permitting activities in the Region will be influenced by the BPTCP monitoring. Effects-based testing has been incorporated into coastal regional monitoring and the BPTCP monitoring approach could become part of regional monitoring in enclosed waters.

Central Valley RWQCB: The RWQCB is in the process of forming the Cache Creek Watershed Management Planning Effort to coordinate with local stakeholders and attempt to reduce the discharge of mercury and

sediment to the Yolo Bypass and western Delta. The major source(s) of mercury are unknown. However, at a minimum it is anticipated (since there are several forms of mercury) that studies will have to be undertaken to determine bioavailability of Cache Creek mercury once in the estuary.

Bioassays were conducted in urban runoff dominated creeks and back sloughs and significant algal and invertebrate toxicity observed. Much of the impairment has been traced to diuron, diazinon, and chlorpyrifos. The first is a herbicide and the other two insecticides. However, TIEs particularly with the algal species, suggest that other, as yet, unidentified wet weather pollutants also are present and contribute to the overall toxicity. Further studies are needed to identify these compounds.

Regional Board Actions
Cache Creek Watershed Management
Control of Pesticides in Urban Stormwater in the Delta
Management Agency Agreement for Pesticides in Surface Waters

Staff representing the San Francisco Bay and Central Valley RWQCBs and the Department of Pesticide Regulation (DPR) are working with representatives from San Francisco Bay area and Central Valley stormwater programs on the development and implementation of an urban pesticide toxicity control strategy. The committee provides a forum for idea exchange, coordination and collaboration on pesticide issues. The primary focus of the committee is diazinon and the control of observed diazinon toxicity in urban runoff. However, the group is also studying other pesticides, particularly chlorpyrifos, that are used for purposes similar to diazinon and which also cause toxicity. The committee wants to preclude establishing a control strategy that would result in substituting the use of diazinon with other toxic pesticides.

The committee anticipates that the strategy will have two components: one which will focus on control of problem products (in terms of formulation or use); and another which will promote integrated pest management in urban areas through general and focused outreach and education. The committee recognizes that the best solutions will be based

on partnerships among federal, state, and local agencies, industry, businesses and the public.

In the Sacramento/San Joaquin Delta Estuary, bioassay and TIE work has identified pesticides in Delta water at concentrations toxic to both the algal and invertebrate component of the EPA three species test and to sensitive local organisms. The principal insecticides causing toxicity to the invertebrate are diazinon, chlorpyrifos, carbofuran, and carbaryl. The pesticides originate from applications on orchards, alfalfa, and other unidentified row crops. The data also suggest that periodically other unidentified compounds may be present. Similarly, diuron and simazine have been observed in Delta water from applications on agriculture. It is not known whether these are the only herbicides responsible for phytotoxicity as the identifications did not include TIE evaluations. More work is needed to identify all the compounds causing toxicity to both algae and invertebrates in Delta surface waters.

The SWRCB and DPR are cooperatively working to regulate pesticide discharges to surface waters. The chemical manufacturers and commodity groups of all orchard dormant spray insecticides have up to four years to voluntarily develop Best Management Practices (BMPs) to reduce insecticide concentrations to non toxic levels. The RWQCB will facilitate and encourage the development of BMPs to reduce instream pesticide concentrations. Further, the RWQCB will continue river and estuarine monitoring as funding permits to insure that the BMPs are effective in reducing pesticide concentrations to non toxic levels. For all other agricultural commodity/pesticide combinations, RWQCB staff will consult with DPR staff, as results are released, to determine the appropriate mitigation measures.

Santa Ana RWQCB: The primary site of concern in the Santa Ana Region is the Rhine Channel in Lower Newport Bay. Historical data, the data collected in the Summer of 1996, and any collected during the current fiscal year (FY 1996-97) will be used in developing future cleanup or remediation plans for this site. The U.S. EPA and the RWQCB have received a 60 day notice of Intent to Sue for failure to establish Total Maximum Daily Loads (TMDLs) for toxics and other parameters for Newport Bay and San Diego Creek. EPA, in consultation with the RWQCB, is seeking settlement of this matter but it is clear that accelerated

action to develop these TMDLs will be necessary. The data provided by the BPTCP monitoring program will be important to this process.

San Diego RWQCB: On three occasions in June and July 1996, RWQCB staff presented the results of the BPTCP San Diego Report to: (1) the BPTCP Advisory Committee, (2) the San Diego Interagency Water Quality Panel, and (3) a group of about 25 staff, industry and government representatives, and conservation/education groups.

As a result of one of the presentations, the County of San Diego Agricultural Commissioner initiated a program to identify the location of

<p>Regional Board Actions</p> <p>Rhine Channel in Lower Newport Bay</p> <p>Control of Chlordane Release into San Diego Bay</p> <p>Voluntary Site Assessments at San Diego Bay Shipyards</p> <p>Problems identified at Seventh Street Channel in San Diego Bay associated with sites in the DOD Installation and Restoration Program</p>
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structural pest control operators tributary to San Diego Bay. This was done in response to the chlordane problem identified by the BPTCP. One of the two high-priority sites identified by the BPTCP contained extremely high levels of chlordane detected off a north San Diego Bay storm drain. The presentations will be the first in a series to be made as part of an effort to achieve the Regional Watershed Plan goals. San Diego Bay is one of three high-priority watersheds now scheduled for immediate attention.

In addition, the BPTCP raw data has been released to the San Diego County Industrial Environmental Association

representative for the purpose of comparison with the data gathered under the three "voluntary site assessments" at San Diego Bay shipyards. The main goal of the assessments is to initiate voluntary corrective action without requiring the Regional Board to resort to formal enforcement action. A major shipyard is proposing to initiate a major dredging project and will use the BPTCP data in assessing the probable requirements for disposal of polluted dredge spoil.

A major use of BPTCP data will be its inclusion as part of a Coordinated Monitoring Program for San Diego Bay. This program is the main feature of the San Diego Interagency Water Quality Panel's Comprehensive Management Plan mandated by the Legislature. The City of San Diego, at the encouragement of the RWQCB, will fund three years of monitoring under this program.

Other federal actions requiring State review include the DOD Installation Restoration (IR) program "superfund" cleanups. The Regional Board works with the Department of Toxic Substances Control to assure the DOD cleanups satisfy State water quality laws. There are approximately 45 DOD IR sites surrounding San Diego Bay. About half of these IR sites are located adjacent to the shoreline of the Bay. The BPTCP sampling program has identified a high priority site at the Seventh Street Channel, within the boundaries of Naval Station San Diego. Several of the IR sites are clustered around the Seventh Street Channel. The large amount and high quality of the BPTCP data taken from locations near these IR sites will assist the Regional Board in assuring compliance with State water pollution law.

Toxic hot spots identified under the BPTCP require revision of "waste discharge requirements" under State law. Because certain State waste discharge requirements are also included in federal permits written by the Regional Boards, some federal permits would also be affected.

The BPTCP data will be used for permit review under these permit programs:

NPDES permits and waste discharge requirements for point sources under the Clean Water Act National Pollutant Discharge Elimination System, including power plant cooling water, shipyard and boat yard discharges of return water, and miscellaneous discharges.

NPDES stormwater non-point source permits and waste discharge requirements, including municipal and construction general permits for urban areas.

Point-source waste discharge requirements under the California Porter-Cologne Water Quality Control Act, including dredge spoil disposal requirements.

Office of Environmental Health Hazard Assessment: OEHHA has worked with the San Francisco Bay RWQCB staff to design, analyze and develop a report on the fish contamination study in San Francisco Bay. In December 1994, OEHHA used these new data to update and expand the sport fish consumption advisory for the San Francisco Bay Estuary. In addition, OEHHA is now working on a comprehensive risk assessment for sport fish consumption from San Francisco Bay to complement the interim advisory.

Database and Computer Network

The database and network (DWQ/SWRCB, 1992; DWQ/SWRCB and Teale Data Center, 1992) are operational, and they have been used consistently by the SWRCB and RWQCB staff. A users guide for the BPTCP database and electronic mail was distributed to Regional and State BPTCP staff in January 1995 (Tappel et al., 1994a; 1994b). RWQCB and SWRCB staff responded to several data requests from interested parties.

The computer network allows the SWRCB and RWQCB staff, DFG, OEHHA, and others to communicate very effectively. The network allows for electronic mail, document transfer and Internet access. The system also provides Geographical Information System capabilities to the SWRCB and RWQCB staff.

Program staff are developing a personal computer-based database to increase the usefulness of the data collected by the BPTCP.

Adequacy of the Annual Fees

The BPTCP has been supported by fees collected from dischargers since 1992. Regulations were adopted by the SWRCB in 1991 that established a fee schedule for point and nonpoint dischargers that discharge into the ocean, enclosed bays or estuaries of the State (SWRCB, 1992c).

There has been a steady decrease in fees invoiced and fees collected since 1992. At the beginning of the BPTCP, the SWRCB and RWQCBs anticipated collections of at least \$5 million per year. Fee collection has decreased by at least \$200,000 per year. The FY 1995-96 annual fees invoiced was \$2,509,700. Expenditures, on average, have matched the revenue collected.

The annual fees created pursuant to Water Code Sections 13396.5(b) and (d) have not been adequate to complete all the tasks contained in Chapter 5.6 of the Water Code (Bay Protection and Toxic Cleanup). Even though the BPTCP has received some additional funding to support some of the monitoring activities, funding has not been adequate to complete the planning activities (i.e., regional cleanup plans, and the statewide cleanup plans).

Decreases in revenue have occurred for a variety of reasons including:

1. Agricultural discharges were exempted from BPTCP fees [SB 1084 Calderon (1993)].
2. Changes in permitted cubic yards of dredge (mostly decreases).
3. Changes in Clean Water Act Section 303(d) assessments. The fee regulations call for discharges to water bodies designated a water quality limited segment to be assessed double the base fee. If these designations are changed fee revenue is decreased.
4. Changes in discharger Threat to Water Quality and Complexity ratings for permits and rescision of permits and Waste Discharge Requirements (both of which reduce the fee base).

BPTCP Annual Fees

Fees inadequate to support completion of all legislative mandates

SWRCB anticipated \$5 million per year

Fee invoices reduced by \$200,000 per year

Current amount invoiced just over \$2.5 million

The RWQCBs are taking an active role in collecting delinquent BPTCP fees.

Program Review and Implementation Plan

The SWRCB conducted an independent review of the implementation of BPTCP (Kolb, 1995). In the review report, twenty specific recommendations were made in eight program areas. The report was reviewed by the BPTCP Advisory Committee, MSTF, SPARC, and the public.

The SWRCB developed a plan to implement the review recommendations (SWRCB, 1995d). The implementation plan discussed changes in Program organization, communication, monitoring design, data management, fee collection, and resource allocation. The implementation plan acknowledged the difficulty in meeting the legislatively mandated goals of the Program with declining revenues. The plan concluded that the BPTCP, with declining resources, should focus its efforts on collecting scientifically defensible monitoring data to identify potential problem areas in the State's enclosed bays and estuaries.

SWRCB Workshop on the BPTCP

On November 2, 1995, a public workshop was held on the future direction of the BPTCP. The SWRCB heard testimony on five options for the Program: (1) continue the BPTCP as described in the Water Code (status quo), (2) modify the BPTCP to focus on identification of toxic hot spots, (3) modify the BPTCP to require a sediment management framework supported by regional case studies, (4) refocus the BPTCP to help coordinate watershed management activities of the SWRCB and RWQCBs, and (5) terminate the Program at the end of the fiscal year.

Review of the BPTCP
Internal review completed
Implementation plan developed
SWRCB Workshop completed

The SWRCB received a variety of written and oral testimony from industry, ports, publicly owned treatment works, environmental groups, DFG, the University of California at Santa Cruz, RWQCBs, legislators and other groups (DWQ/SWRCB, 1995b). RWQCB staff, DFG, the University, environmental groups, and members of the Legislature were in favor of

continuing the BPTCP. However, members of the regulated community asked the SWRCB to terminate the Program.

After careful consideration of all the comments received, the SWRCB decided to continue the BPTCP with a focus on regional monitoring and watershed management. The BPTCP Advisory Committee and others have discussed the existing Program extensively and have discussed the following concepts that could be incorporated in the Program:

1. The Water Code could be modified to specifically focus the Program on regional monitoring and watershed management.
2. The term "toxic hot spot" should be replaced.
3. The Program should be modified to require the use a weight-of-evidence approach to identify water quality problems.
4. The Program should emphasize regional ranking of polluted areas.
5. The Water Code should be modified to encourage the RWQCBs to use watershed management principles to address identified problems.

**How to Improve
the BPTCP**

Focus on regional monitoring and watershed management

Use a weight-of-evidence approach

Rank sites regionally

Continue monitoring efforts

**Recommendations of the BPTCP
Advisory Committee**

On October 8, 1996, the BPTCP Advisory Committee approved several recommendations regarding the BPTCP. The Advisory Committee voted 9 to 0 to approve the recommendations. One member (a representative from a Resource Conservation District) was not present at the meeting and did not vote. The Advisory Committee recommendations were:

1. As a Policy, the SWRCB should adopt the Weight-of-Evidence approach (i.e., the triad approach currently being used by the BPTCP) for site evaluation and identification on a Regional basis.

2. Weight-of-Evidence should be used to identify:
 - the worst of the worst sites
 - bad sites
 - sites that need more information
 - clean sites
 - sites that require no action
 - reference sitesThis approach should not be used to rank sites on a Statewide basis.

**Advisory Committee
Recommendations**

The SWRCB should adopt Weight-of-Evidence approach

Weight-of-Evidence should identify several types of sites

The SWRCB should adopt default criteria for evaluation, identification and setting priorities for sites

RWQCBs should have flexibility in modifying the SWRCB default criteria

Incorporate BPTCP data into existing programs

Agricultural dischargers should

3. The SWRCB should adopt default criteria for evaluation, identification, and setting priorities that would bring all Regions to a minimum level using Weight-of-Evidence approach.

4. The RWQCBs may adopt Region-specific criteria that would modify the State criteria for use in that Region in applying the Weight-of-Evidence approach.

5. Data generated by the BPTCP should be integrated with existing Programs to develop pollution prevention strategies.

6. Agricultural dischargers should be required to pay BPTCP fees.

CONCLUSIONS

1. The BPTCP has completed a significant amount of monitoring to identify toxic hot spots. The BPTCP monitoring effort is the only State program to focus on bay and estuary sediments and has pioneered the use of effects-based monitoring of sediments. These studies will be very valuable in regional decision making.
2. Several reports on the monitoring results have been completed or are in preparation. These reports will be very useful in addressing polluted sites. A workplan for the development of sediment quality objectives was developed.
3. The BPTCP consolidated database has been developed.
4. The Enclosed Bays and Estuaries Plan was developed and amended. The Plan was rescinded by the SWRCB in 1994 in response to a California Superior Court judgement and is currently being redeveloped.
5. Toxic Hot Spot Ranking Criteria have been drafted.
6. Three review committees have been established: the MSTF, the SPARC and the BPTCP Advisory Committee.
7. Guidance on the development of Toxic Hot Spot Cleanup Plans has been drafted.
8. The annual fees collected to support the BPTCP have been far less than originally projected and consequently have been inadequate to fund the remaining tasks (e.g., Toxic Hot Spot Cleanup Plans) required by the Water Code. The funding is barely enough for

Major Conclusions

BPTCP's pioneering use of effects-based monitoring has provided better information to make decisions

BPTCP reports provide valuable information

Extensive review by the public and scientists provides new focus for the BPTCP

Annual fees inadequate to complete mandates

Comprehensive watershed management framework will be more effective in addressing cleanup

continued monitoring to identify Toxic Hot Spots in enclosed bays and estuaries of California. During the final two years of the Program, the BPTCP will focus attention on completion and reporting of monitoring.

9. The BPTCP has received considerable scrutiny by the BPTCP Advisory Committee, the independent program review, and SWRCB public workshop. Many of the Program tasks have been controversial. These activities provided new focus to the BPTCP.
10. The use of a comprehensive watershed management framework for the prevention and cleanup of polluted sediments in the enclosed bays and estuaries of the State will be very effective in addressing site cleanup.

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A P P E N D I X A

Bay Protection and Toxic Cleanup Program

Chapter 5.6 of the Water Code
Section 13390 et seq.

CHAPTER 5.6 BAY PROTECTION AND TOXIC CLEANUP

§ 13390. Legislative intent.

It is the intent of the Legislature that the state board and the regional boards establish programs that provide maximum protection for existing beneficial uses of bay and estuarine waters, and that these programs include a plan for remedial action at toxic hot spots. It is also the intent of the Legislature that these programs further comply with federal law pertaining to the identification of waters where the protection and propagation of shellfish, fish, and wildlife are threatened by toxic pollutants and contribute to the development of effective strategies to control these pollutants. It is also the intent of the Legislature that these programs be structured and maintained in a manner which allows the state board and the regional boards to make maximum use of any federal funds which may be available for any of the purposes specified in this chapter.

§ 13391. California Enclosed Bays and Estuaries Plan.

(a) The state board shall formulate and adopt a water quality control plan for enclosed bays and estuaries, which shall be known as the California Enclosed Bays and Estuaries Plan, in accordance with the procedures established by this division for adopting water quality control plans.

(b) As part of its formulation and adoption of the California Enclosed Bays and Estuaries Plan, the state board shall review and update the Water Quality Control Policy for Enclosed Bays and Estuaries of California, as adopted in 1974 pursuant to Article 3 (commencing with Section 13140) of Chapter 3, and incorporate the results of that review and update in the California Enclosed Bays and Estuaries Plan.

(c) State and regional offices, departments, boards and agencies shall fully implement the California Enclosed Bays and Estuaries Plan. Pending adoption of the California Enclosed Bays and Estuaries Plan by the state board, state and regional offices, departments, boards and agencies shall fully implement the Water Quality Control Policy for Enclosed Bays and Estuaries of California.

(d) Each regional board shall review and, if necessary, revise waste discharge requirements that are inconsistent with those policies and principles.

§ 13391.5. Definitions.

The definitions in this section govern the construction of this chapter.

(a) "Enclosed bays" means indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. "Enclosed bays" include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. "Enclosed bays" include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. For the purposes of identifying, characterizing, and ranking toxic hot spots pursuant to this chapter, Monterey Bay and Santa Monica Bay shall also be considered to be enclosed bays.

(b) "Estuaries" means waters, including coastal lagoons, located at the mouths of streams which serve as mixing zones for fresh and ocean waters. Coastal lagoons and mouths of streams which are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and sea water. Estuarine waters include, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Section 12220, and Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay Rivers.

(c) "Health risk assessment" means an analysis which evaluates and quantifies the potential human exposure to a pollutant that bioaccumulates or may bioaccumulate in edible fish, shellfish, or wildlife. "Health risk assessment" includes an analysis of both individual and population wide health risks associated with anticipated levels of human exposure, including potential synergistic effects of toxic pollutants and impacts on sensitive populations.

(d) "Sediment quality objective" means that level of a constituent in sediment which is established with an adequate margin of safety, for the

reasonable protection of the beneficial uses of water or the prevention of nuisances.

(e) "Toxic hot spots" means locations in enclosed bays, estuaries, or any adjacent waters in the "contiguous zone" or the "ocean," as defined in Section 502 of the Clean Water Act (33 U.S.C. Sec. 1362), the pollution or contamination of which affects the interests of the state, and where hazardous substances have accumulated in the water or sediment to levels which (1) may pose a substantial present or potential hazard to aquatic life, wildlife, fisheries, or human health, or (2) may adversely affect beneficial uses of the bay, estuary, or ocean waters as defined in water quality control plans, or (3) exceeds adopted water quality or sediment quality objectives.

(f) "Hazardous substances" has the same meaning as defined in subdivision (f) of Section 25281 of the Health and Safety Code.

§ 13392. "Toxic hot spots".

The state board and the regional boards, in consultation with the Office of Environmental Health Hazard Assessment and the Department of Fish and Game, shall develop and maintain a comprehensive program to (1) identify and characterize toxic hot spots, as defined in Section 13391.5, (2) plan for the cleanup or other appropriate remedial or mitigating actions at the sites, and (3) amend water quality control plans and policies to incorporate strategies to prevent the creation of new toxic hot spots and the further pollution of existing hot spots. As part of this program, the state board and regional boards shall, to the extent feasible, identify specific discharges or waste management practices which contribute to the creation of toxic hot spots, and shall develop appropriate prevention strategies, including, but not limited to, adoption of more stringent waste discharge requirements, onshore remedial actions, adoption of regulations to control source pollutants, and development of new programs to reduce urban and agricultural runoff.

§ 13392.5. Monitoring and surveillance.

(a) Each regional board that has regulatory authority for one or more enclosed bays or estuaries shall, on or before January 30, 1994, develop for each enclosed bay or estuary, a consolidated data base which identifies and describes all known and potential toxic hot spots. Each regional board shall, in consultation with the state board, also develop an

ongoing monitoring and surveillance program that includes, but is not limited to, the following components:

- (1) Establishment of a monitoring and surveillance task force that includes representation from agencies, including, but not limited to, the State Department of Health Services and the Department of Fish and Game, that routinely monitor water quality, sediment, and aquatic life.
- (2) Suggested guidelines to promote standardized analytical methodologies and consistency in data reporting.
- (3) Identification of additional monitoring and analyses that are needed to develop a complete toxic hot spot assessment for each enclosed bay and estuary.

(b) Each regional board shall make available to state and local agencies and the public all information contained in the consolidated data base, as well as the results of new monitoring and surveillance data.

§ 13392.6. Sediment policy objectives workplan.

(a) On or before July 1, 1991, the state board shall adopt and submit to the Legislature a workplan for the adoption of sediment quality objectives for toxic pollutants that have been identified by the state board or a regional board as a pollutant of concern. The workplan shall include priorities and a schedule for development and adoption of sediment quality objectives, identification of additional resource needs, and identification of staff or funding needs. The state board is not prohibited from adopting sediment quality objectives in the workplan for a constituent for which the workplan identifies additional research needs.

(b) In preparing the workplan pursuant to subdivision (a), the state board shall conduct public hearings and workshops and shall consult with persons associated with municipal discharges, industrial discharges, other public agencies, research scientists, commercial and sport fishing interests, marine interests, organizations for the protection of natural resources and the environment, and the general public.

§ 13393. Sediment policy objectives.

(a) The state board shall adopt sediment quality objectives pursuant to the workplan submitted pursuant to Section 13392.6.

(b) The state board shall adopt the sediment quality objectives pursuant to the procedures established by this division for adopting or amending water quality control plans. The sediment quality objectives shall be based

on scientific information, including, but not limited to, chemical monitoring, bioassays, or established modeling procedures, and shall provide adequate protection for the most sensitive aquatic organisms. The state board shall base the sediment quality objectives on a health risk assessment if there is a potential for exposure of humans to pollutants through the food chain to edible fish, shellfish, or wildlife.

(c)(1) Notwithstanding subdivision (a), in adopting sediment quality objectives pursuant to this section, the state board shall consider the federal sediment criteria for toxic pollutants that are being prepared, or that have been adopted, by the Environmental Protection Agency pursuant to Section 1314 of Title 33 of the United States Code.

(2) If federal sediment criteria have been adopted, the state board shall review the federal sediment criteria and determine if the criteria meet the requirements of this section. If the state board determines that a federal sediment criteria meets the requirements of this section, the state board shall adopt the criterion as a sediment quality pursuant to this section. If the state board determines that a federal sediment criterion fails to meet the requirements of this section, the state board shall adopt a sediment quality objective that meets the requirements of this section.

§ 13393.5. Ranking of toxic hot spots.

On or before January 30, 1994, the state board, in consultation with the State Department of Health Services and the Department of Fish and Game, shall adopt general criteria for the assessment and priority ranking of toxic hot spots. The criteria shall take into account the pertinent factors relating to public health and environmental quality, including, but not limited to, potential hazards to public health, toxic hazards to fish, shellfish, and wildlife, and the extent to which the deferral of a remedial action will result, or is likely to result, in a significant increase in environmental damage, health risks, or cleanup costs.

§ 13394. Cleanup plan.

On or before January 1, 1998, each regional board shall complete and submit to the state board a toxic hot spots cleanup plan. On or before June 30, 1999, the state board shall submit to the Legislature a consolidated statewide toxic hot spots cleanup plan. The cleanup plan submitted by each regional board and the state board shall include, but not be limited to, the following information:

(a) A priority ranking of all hot spots, including the state board's recommendations for remedial action at each toxic hot spot site.

(b) A description of each hot spot site including a characterization of the pollutants present at the site.

(c) An estimate of the total costs to implement the plan.

(d) An assessment of the most likely source or sources of pollutants.

(e) An estimate of the costs that may be recoverable from parties responsible for the discharge of pollutants that have accumulated in sediment.

(f) A preliminary assessment of the actions required to remedy or restore a toxic hot spot.

(g) A two-year expenditure schedule identifying state funds needed to implement the plan.

(h) A summary of actions that have been initiated by the regional board to reduce the accumulation of pollutants at existing hot spot sites and to prevent the creation of new hot spots.

(i) The plan submitted by the state board shall include findings and recommendations concerning the need for establishment of a toxic hot spots cleanup program.

§ 13394.5 Expenditure plan.

The state board, as part of the annual budget process, shall prepare and submit to the Legislature a recommended annual expenditure plan for the implementation of this chapter.

§ 13394.6 Advisory committee.

(a) The state board shall establish an advisory committee to assist in the implementation of this chapter. The members of the advisory committee shall be appointed by the state board to represent all of the following interests:

(1) Trade associations whose members are businesses that use the bay, estuaries, and coastal waters of the state as a resource in their business activities.

(2) Dischargers required to pay fees pursuant to Section 13396.5.

(3) Environmental, public interest, public health, and wildlife conservation organizations.

(b) The members of the advisory committee shall select a member as the chairperson of the committee. The chairperson shall convene meetings of the committee every three months in any calendar year. The members of the advisory committee shall serve without compensation.

(c) The advisory committee shall have access to all information and documents except for internal communications that are prepared to implement this chapter and may provide the state board with its views on how that information should be interpreted and used.

§ 13395. Reevaluation of discharge requirements.

Each regional board shall, within 120 days from the ranking of a toxic hot spot, initiate a reevaluation of waste discharge requirements for dischargers who, based on the determination of the regional board, have discharged all or part of the pollutants which have caused the toxic hot spot. These reevaluations shall be for the purpose of ensuring compliance with water quality control plans and water quality control plan amendments. These reevaluations shall be initiated according to the priority ranking established pursuant to subdivision (a) of Section 13394 and shall be scheduled so that, for each region, the first reevaluation shall be initiated within 120 days from, and the last shall be initiated within one year from, the ranking of the toxic hot spots. The regional board shall, consistent with the policies and principles set forth in Section 13391, revise waste discharge requirements to ensure compliance with water quality control plans and water quality control plan amendments adopted pursuant to Article 3 (commencing with Section 13240) of Chapter 4, including requirements to prevent the creation of new toxic hot spots and the maintenance or further pollution of existing toxic hot spots. The regional board may determine it is not necessary to revise a waste discharge requirement only if it finds that the toxic hot spot resulted from practices no longer being conducted by the discharger or permitted under the existing waste discharge requirement, or that the discharger's contribution to the creation or maintenance of the toxic hot spot is not significant.

§ 13395.5 Evaluation agreements.

The state board may enter into contracts and other agreements for the purpose of evaluating or demonstrating methods for the removal, treatment, or stabilization of contaminated bottom sediment. For the purpose of preparing health risk assessments pursuant to Section 13393,

the state board shall enter into contracts or agreements with the Office of Environmental Health Hazard Assessment, or with other state or local agencies, subject to the approval of the office. The costs incurred for work conducted by other state agencies, including, but not limited to, the office and the Department of Fish and Game, pursuant to this chapter shall be reimbursed according to the terms of an interagency agreement between the state board and the agency.

§ 13396. Dredging certification.

No person shall dredge or otherwise disturb a toxic hot spot site that has been identified and ranked by a regional board without first obtaining certification pursuant to Section 401 of the Clean Water Act (33 U.S.C. Sec. 1341) or waste discharge requirements. The state board and any regional board to which the state board has delegated authority to issue certification shall not waive certification for any discharge resulting from the dredging or disturbance unless waste discharge requirements have been issued. If the state board or a regional board does not issue waste discharge requirements or a certification within the period provided for certification under Section 401 of the Clean Water Act, the certification shall be deemed denied without prejudice. On or after January 1, 1993, the state and regional boards shall not grant approval for a dredging project that involves the removal or disturbance of sediment which contains pollutants at or above the sediment quality objectives established pursuant to Section 13393 unless the board determines all of the following:

- (a) The polluted sediment will be removed in a manner that prevents or minimizes water quality degradation.
- (b) Polluted dredge spoils will not be deposited in a location that may cause significant adverse effects to aquatic life, fish, shellfish, or wildlife or may harm the beneficial uses of the receiving waters, or does not create maximum benefit to the people of the state.
- (c) The project or activity will not cause significant adverse impacts upon a federal sanctuary, recreational area, or other of significant national importance.

§ 13396.5. Fees.

- (a) The state board shall establish fees applicable to all point and nonpoint dischargers who discharge into enclosed bays, estuaries, or any adjacent waters in the contiguous zone or the ocean as defined in Section

502 of the Federal Water Pollution Control Act (33 U.S.C. Sec. 1362), which shall be collected annually.

(b) The fees shall create incentives to reduce discharges to the ocean, bays, and estuaries and shall be based on the relative threat to water quality from point and nonpoint dischargers. The schedule of fees shall be set at an amount sufficient to fund the responsibilities and duties of the state board, the Office of Environmental Health Hazard Assessment, and the Department of Fish and Game established by this chapter. The total amount of fees collected pursuant to this section shall not exceed four million dollars (\$4,000,000) per year. Nothing in this section limits or restricts the funding of activities required by this chapter from sources in addition to the fees established by this section.

(c) Fees collected pursuant to this section shall be deposited in the Bay Protection and Toxic Cleanup Fund which is hereby created, and shall be available for expenditure by the state board, upon appropriation by the Legislature, for the purposes of carrying out this chapter.

(d) Fees collected pursuant to this section shall be in addition to fees established pursuant to Section 13260 and shall not be subject to the maximum fee established in subdivision (d) of Section 13260, provided that the annual fee under this section shall not exceed the amount of thirty thousand dollars (\$30,000) per discharger.

(e) Any person failing to pay a fee established under this section when so requested by the state board is guilty of a misdemeanor and may be liable civilly in accordance with subdivision (d) of Section 13261.

(f) On or before January 1, 1996, the state board shall report to the Legislature on the progress made toward meeting the requirements of this chapter and the adequacy of the fee levels established in subdivisions (b) and (d).

(g) No fee may be imposed pursuant to this section on any agricultural nonpoint source discharger.

(h) This section shall remain in effect only until January 1, 1998, and as of that date is repealed, unless a later enacted statute, which is enacted before January 1, 1998, deletes or extends that date.

§ 13396.6. Habitat for water-dependent wildlife.

No fees may be imposed pursuant to Section 13396.5 on dischargers who discharge into enclosed bays, estuaries, or adjacent waters in the contiguous zone or the ocean from lands managed solely to provide habitat for waterfowl and other water-dependent wildlife.

§ 13396.7. Recreational water quality standards.

(a) The state board, in consultation with the State Department of Health Services, shall contract with an independent contractor to conduct a study to determine the adverse health effects of urban runoff on swimmers at urban beaches. The contract shall include a provision that requires the study to be conducted as prescribed in the study proposal approved by the Santa Monica Bay Restoration Project. The study shall be paid for by using available resources or state funds appropriated in the annual Budget Act.

(b) It is the intent of the Legislature that the state board and the State Department of Health Services use the results of the study undertaken pursuant to subdivision (a) to establish recreational water quality standards.

APPENDIX B

Executive Summary of the
Draft Functional Equivalent Document
for the Implementation of the
Bay Protection and Toxic Cleanup Program

EXECUTIVE SUMMARY

The Staff of the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Boards (RWQCB) have prepared this draft Functional Equivalent Document for SWRCB consideration of a proposal to develop a new Statewide Water Quality Control Policy for implementation of the Bay Protection and Toxic Cleanup Program (BPTCP). A hearing is scheduled for _____.

This report documents the justification and recommended policy statements contained in the draft policy (Appendix A) including:

1. Authority and Reference for Guidance Regarding Implementation of the BPTCP
2. A specific definition of a toxic hot spot
3. Narrative sediment quality objectives
4. Criteria to rank toxic hot spots
5. Monitoring procedures for toxic hot spot identification including selection of biological monitoring methods, selection of sampling strategy, and toxic hot spots data analysis
6. Development process for regional toxic hot spot cleanup plans
7. Mandatory requirements for regional and Statewide toxic hot spot cleanup plans
8. Process to remediate polluted sediment at toxic hot spots
9. Responsibility for suggesting methods for toxic hot spot cleanup
10. Development of cleanup levels for polluted sites
11. Remediation actions (with descriptions of both cleanup methods and costs)
12. Optional use of an expedited cleanup process

13. Toxic hot spot prevention strategies
14. Program of Implementation (including a schedule for completion of the cleanup plans)